

What is claimed is:

- (Claim 1)** A path prediction system for a vehicle comprising:
a plurality of vehicle state sensors generating vehicle state signals;
at least one tracking sensor generating a path characteristic signal;
a path prediction module determining a plurality of predicted path estimations of a future path of the vehicle in response to data received from each of said plurality of vehicle state sensors and said at least one tracking sensor, said path prediction module determining a resultant predicted future path and a path confidence level in response to said plurality of predicted path estimations; and
a controller performing a countermeasure in response to said resultant predicted future path and said path confidence level.
- (Claim 2)** A system as in claim 1 wherein said path confidence level corresponds with the accuracy of said resultant predicted future path.
- (Claim 3)** A system as in claim 1 wherein said plurality of vehicle state sensors comprises at least one of a vehicle speed sensor, an inertial rate sensor, a yaw rate sensor, and a steering wheel angle sensor.
- (Claim 4)** A system as in claim 1 wherein said at least one external path-tracking sensor comprises a lane and road tracking sensor.
- (Claim 5)** A system as in claim 1 wherein said at least one path-tracking sensor comprises at least one of a vision sensor, a camera, a global positioning sensor, a radar sensor, a lidar sensor, an ultrasonic sensor, an infrared sensor, and a wave-ranging device.
- (Claim 6)** A system as in claim 1 further comprising an adaptive task scheduler determining processing tasks to perform, said vehicle state sensors generating said plurality of vehicle state signals in response to said processing tasks.
- (Claim 7)** A system as in claim 1 further comprising an adaptive task scheduler determining processing tasks to perform, said path prediction module determining said resultant predicted future path and said path confidence level in response to said processing tasks.
- (Claim 8)** A system as in claim 1 wherein said path prediction module assigns a high confidence level to said resultant predicted future path when a majority of said plurality of predicted path estimations are in agreement.
- (Claim 9)** A system as in claim 1 wherein said path prediction module selects said resultant predicted future path from said plurality of predicted path estimations and assigns a low level of confidence to said selection.

(Claim 10) A system as in claim 1 wherein said path prediction module in determining a plurality of predicted path estimations determines a first predicted path in response to data received from a first vehicle state sensor and determines a second predicted path in response to data received from said path-tracking sensor.

(Claim 11) A system as in claim 10 wherein said path prediction module determines said resultant predicted future path and said path confidence level in response to said first predicted path and said second predicted path.

(Claim 12) A system as in claim 10 wherein said path prediction module in determining a plurality of predicted path estimations determines a third predicted path in response to data received from a second vehicle state sensor.

(Claim 13) A system as in claim 12 wherein said path prediction module determines said resultant predicted future path and said path confidence level in response to said first predicted path and said third predicted path.

(Claim 14) A system as in claim 1 wherein said path prediction module in determining a plurality of predicted path estimations determines a first predicted path in response to data received from a first vehicle state sensor and determines a second predicted path in response to data received from a second vehicle state sensor.

(Claim 15) A system as in claim 1 wherein said path prediction module determines instantaneous position of the vehicle in response to said vehicle state signals, and determines said resultant predicted future path and said path confidence level in response to said instantaneous position.

(Claim 16) A method of performing a countermeasure within a vehicle comprising:

- generating vehicle state signals;
- generating a path characteristic signal;
- determining a plurality of predicted path estimations in response to data received from a plurality of vehicle state sensors and a tracking sensor;
- determining a resultant predicted future path and a path confidence level in response to said plurality of predicted path estimations;
- performing a countermeasure in response to said resultant predicted future path and said path confidence level.

(Claim 17) A method as in claim 16 wherein determining a plurality of predicted path estimations comprises determining a first predicted path in response to data received from a first vehicle state sensor and determining a second predicted path in response to data received from said path-tracking sensor.

(Claim 18) A method as in claim 16 wherein determining a plurality of predicted path estimations comprises determining a first predicted path in response to data received from a first vehicle state sensor and determining a second predicted path in response to data received from a second vehicle state sensor.

(Claim 19) A path prediction system for a vehicle comprising:
a plurality of vehicle state sensors generating vehicle state signals;
at least one tracking sensor generating a path characteristic signal;
a path prediction module determining a plurality of predicted path estimations in response to data received from each of said plurality of vehicle state sensors and said at least one tracking sensor, said path prediction module comparing said plurality of predicted path estimations and determining a resultant path and a path confidence level in response to said comparison; and
a controller performing a countermeasure in response to said resultant predicted future path and said path confidence level.

(Claim 20) A system as in claim 19 wherein said path prediction module in comparing said plurality of predicted path estimations determines at least one of an average, a median, an approximate center point, a mean, an extrapolation, and a functional result of said plurality of predicted path estimations.